

### **CLAIMS**

1. A fuel injector nozzle (6, 31, 60) for a gas turbine, the nozzle (6, 31, 60) comprising an air supply presented to a fuel distribution arrangement (37, 47, 51) whereby fuel presented to the air flow (5, 25) is mixed for subsequent combustion in use, the fuel being presented by fuel distribution structures (42, 52, 53) the nozzle characterised in that the fuel distribution structures (42, 52, 53) are asymmetrically distributed about the nozzle whereby fuel is differentially presented to the air flow (25) passing through the nozzle in use dependent upon localised air flow pressure.
2. A nozzle as claimed in claim 1 wherein the nozzle (6, 31, 60) has a greater cross-section than the air flow (25) directly impinging upon the nozzle.
3. A nozzle as claimed in claim 1 or claim 2 wherein the fuel distribution structures (42, 52, 53) are configured such that less fuel is presented at portions (21) of the air flow of lower flow pressure typically outside of the direct impingement cross-section (23) of the air flow.
4. A fuel distribution structure (37, 47, 51) for a fuel injection nozzle wherein the fuel distribution structure (37, 47, 51) distributes fuel to an air flow (25), the fuel distribution structure characterised in that there is a radially asymmetric distribution of such fuel distribution by such fuel distribution structure in order to differentially present fuel to the air flow dependent upon localised air flow (25) pressure.
5. A structure as claimed in claim 4 wherein the fuel distribution structure (37, 47, 51) comprises a plurality of grooves (42, 43).
6. A structure as claimed in claim 4 wherein the fuel distribution structure comprises a number of passageways.

7. A fuel distribution structure as claimed in claim 4 wherein the fuel distribution structure comprises a number of apertures to appropriately present fuel to the air flow.
8. A fuel distribution structure as claimed in any of claims 4 to 7 wherein the fuel distribution structure comprises a number of substantially consistent cross-section aperture portions (52), asymmetrically distributed about the fuel distribution structure.
9. A fuel distribution structure as claimed in any of claims 4 to 7 wherein the fuel distribution structure comprises a number of variably different cross-section apertures (53) evenly distributed about the fuel distribution structure.
10. A fuel distribution structure incorporating cross-sectional portions (52, 53) as claimed in claim 7 and claim 8.
11. A fuel distribution structure as claimed in any of claims 4 to 10 wherein the fuel distribution structure is angled relative to the direction of air flow.
12. A fuel distribution structure as claimed in any of claims 4 to 11 wherein the fuel distribution structure is an integral part of a fuel injection nozzle.
13. A fuel distribution structure comprising a number of elements having a height in the range 0.25 – 1.00mm, a width in the range 0.25 – 1.00mm and with a pitch between respective elements in the order of 3 - 20°.
16. A turbine engine incorporating a fuel distribution structure as claimed in any of claims 4 to 15.